Completed Return-On-Investment Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

Purge Water Management System
Savannah River Site, South Carolina

Original Problem

Environmental monitoring wells must be purged with 2 – 4 well volumes to ensure representative samples are drawn. Dependent on groundwater contaminates, the well purge water can either be discharge at the sample site or must be containerized and treated through a SRS waste water treatment facility incurring cost for collection, transport and treatment.

The ROI Project Solution

The **Purge Water Management System (PWMS)** is an innovative technology being evaluated for elimination or significant reduction of purged groundwater generated during routine groundwater sampling. The PWMS is a closed-loop non-contact aqueous system used to return monitoring well purge-water back to the originating aquifer after a sampling event. Regulators have approved this technology.

DOE Monetary Benefits	
Cost	**$1,000,000 for retrofit of 396 wells**
Lifecycle Savings	**$6,000,000**
Return on Investment	**34%**

Value Of Improvement

Installation at the 396 monitoring wells that are suitable for deployment of the PWMS at the SRS saves ~$400,000 per year. This technology will be deployed as new wells are identified and PWMS funding obtained at the SRS. The technology has been funded for deployment at other DOE sites.

Lifecycle Waste Reduction	
Life Cycle Waste Reduction	**24,000 m3 waste water**
Operation Commencement Date	**FY98**
Project Useful Life (Years)	**15 yrs**

Benefits At-A-Glance

- Avoids containerization and treatment of purge water with associated cost of collection, transport, and treatment which averages ~$400,000 per year for ~400 wells at the SRS.
- Reduces risk and potential regulatory liability associated with handling and spill of the wastewater, not costed.
- New technology proven cost effective

Building Upon an Office of Science and Technology Demonstration Success

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Summary Data

ROI Priority Area:	**Environmental Restoration Projects**
ROI Project Type:	**Source Reduction**
Project Cost:	**~$1,000,000 for ~400 well retrofits**
Lifecycle Savings:	**$6,000,000 for 400 wells based on 15-year life**
Implementing Group:	EM, SRS, Environmental Restoration Division
Benefiting Group:	EM, SRS, Environmental Restoration Division
Useful Life Years:	**15 years**
Return On Investment:	**34 %**
Lifecycle Waste Reduction:	**24,000 m3 of waste water for 400 wells**

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